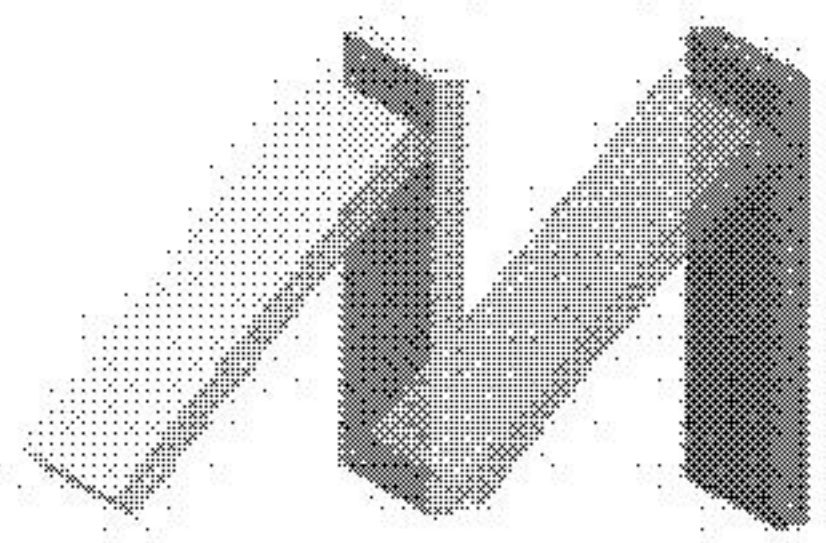




JOB TITLE Castle Inn, Hickstead			ITEM Structural calculations		
DESIGNED BY GM	DATE Mar 25	CHECKED BY	JOB NO. 24283	SHEET 06	REV

BS
6399

GROUND FLOOR - STRUCTURAL CHECK

BAR LOADING - 5 kN/m^2

AREA 1 - JOIST SIZE - $50 \times 175 \text{ mm}$ AT 350 CTRS.

3.6m CLEAR SPAN

DEAD LOAD = 0.5 kN/m^2

+ UNDER FLOOR HEATING = 0.2 kN/m^2

TOTAL $5.7 \text{ kN/m}^2 \times 0.35 \text{ m} = 2 \text{ kN/m}$

$\text{BM} = 2 \times \frac{3.7^2}{8} = 3.4 \text{ kNm}$

$f = \frac{m}{z} = \frac{3.4 \times 10^6}{50 \times 175^2} = 13.3 \text{ N/mm}^2$ NOT ok

DOUBLE ALL JOISTS.

$d = \frac{5 \times 2 \times 3700^4 \times 12}{384 \times 10800 \times 100 \times 175^3} = 10 \text{ mm}$

$d_{all} = 3700 \times 0.003 = 11.1 \text{ mm}$ ok.

2N° 47x175 C24 JOISTS.

AREA 2 - JOIST SIZE - 50×125 AT 350 CTRS

2.3m CLEAR SPAN

$\text{BM} = 2 \times \frac{2.4^2}{8} = 1.44 \text{ kNm}$

$f = \frac{m}{z} = \frac{1.44 \times 10^6}{50 \times 125^2} = 11 \text{ N/mm}^2$ NOT ok

INCREASE TO 150mm
OR DOUBLE UP.

$d = \frac{5 \times 2 \times 2400^4 \times 12}{384 \times 10800 \times 100 \times 125^3} = 5 \text{ mm}$ ok.

2N° 47x125 C24 JOISTS